CIO Executive Briefing

Build the right architecture to allow the deployment of data and analytics at scale for retailers and CPGs of the future.

The Goal: Industrializing Data and Analytics at Scale

Unprecedented changes in consumer behavior, intensified pressure on margins, the changing role of stores, and a radically changed competitive landscape for both online and offline channels are driving a retail and consumer packaged goods (CPG) transformation. Customers now expect retailers, CPGs, and their brands to provide them with hyper-personalized websites, offers, and content. Retailers and CPGs must therefore deliver a hyper-localized shopping experience to stay relevant and competitive compared to all the other options consumers now have available to them.

This transformation requires an unprecedented level of orchestration across data and analytic pipelines to ensure that every customer interaction can be captured with a very low latency, along with operational events from both internal and partners' business processes.

Furthermore, exploiting the rich portfolio of data now available for advanced analytics and artificial intelligence (AI) to drive progress, such as operational decisioning for improved store forecasting or individual customer personalization, implies a massive step change in the industrialization of analytics processes as the volume and complexity increases exponentially.

However, despite huge increases in data and analytic related investments, many organizations are failing to deliver the expected business outcomes associated with data and analytic programs.

What Can Teradata Help You Avoid?

Why are so many transformation programs failing to realize the value of the data and analytic capabilities companies strived so hard to deploy? Despite the millions of dollars invested in data and analytics, how often do you still sit in a strategy meeting and instead of talking about the strategy, end up debating why the numbers don't match?

Retailer / CPG of the Future
Requires full integration and orchestration

"How can I link all data points to understand cost to serve and CLV"

Marketing Consumer Insights

New Product Development

"How can I combine my data sources to understand trends faster"

Marketing Consumer Use

Sourcing

"I need to connect range/ price changes with promos and personalization"

Architecture Data & Analytics

"I need more real-time data in order to better forecast demand"

Commercial Sales

Manufacturing

"How do I understand my customers online and offline shops"

Store / Online

Supply Chain

"Saving money by buying cheaply incurs huge supply chain costs"

Figure 1. Orchestrating the Retailer/CPG Analytic Ecosystem of the Future

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In many cases, companies have over-rotated their approach to focus on agility and autonomy as they seek to throw off many of the constraining governance shackles from previous approaches. This has led to an ever-increasing number of silos within organizations because departments embrace a newfound freedom to build their own data and analytic point solutions. This only adds to the mountain of tech-debt they were seeking to replace:

- Major inefficiencies are driving increased costs
- Duplicating data
- Increasing complexity with a data pipeline jungle
- Manual and unaccountable analytic workflows
- Inability to "connect the dots" between departments to optimize cross-functional business processes
- Short-term technology choices that struggle at scale to meet the diverse enterprise needs
- A lack of top-down governance
- Inflexibility
- Challenges with real-time delivery
- Vendor lock-in risk

The Best Solution Requires the Best Technology

The solution is to deploy a data and analytics platform that has multidimensional scalability. A data and analytic ecosystem with Teradata Vantage™ at its hub, for example, can support real-time data integration across all departments within your business (Figure 1). Only then can you finally start delivering a single version of the truth to the boardroom.

Teradata's query fabric orchestrates data across both external data platforms and cloud data stores, whilst at the same time giving you the ability to natively connect your favorite analytic toolsets. Vantage facilitates the creation of robust, efficient, and cost-effective data and analytic products with speed and at scale, delivering better business outcomes for both teams and partners.

How Can Teradata Underpin Your Data and Analytic Transformation?

Here are some examples of how leading companies are building a data and analytic ecosystem using Teradata Vantage to achieve transformational outcomes:

- **Deployment options:** All major cloud, multi-cloud, hybrid, and on-premises options.
- **Benefit from a Bring Your Own Model approach:** Create and/or reuse your own models from your favorite tools to successfully build and deploy predictive analytics in parallel and at scale.
- **In-database analytics:** Utilize built-in extensions for pathing, time series, geospatial, and temporal use cases. Reduce data preparation overheads with high performance data wrangling functions.
- **Reduce time to market:** Accelerate the delivery of data and analytic pipelines with DataOps and AnalyticOps.
- **Reduce data platform complexity:** Divide and conquer by federating the development of data products via domains, and deploy on a consolidated scalable enterprise platform — reducing the need to move and/or duplicate data.
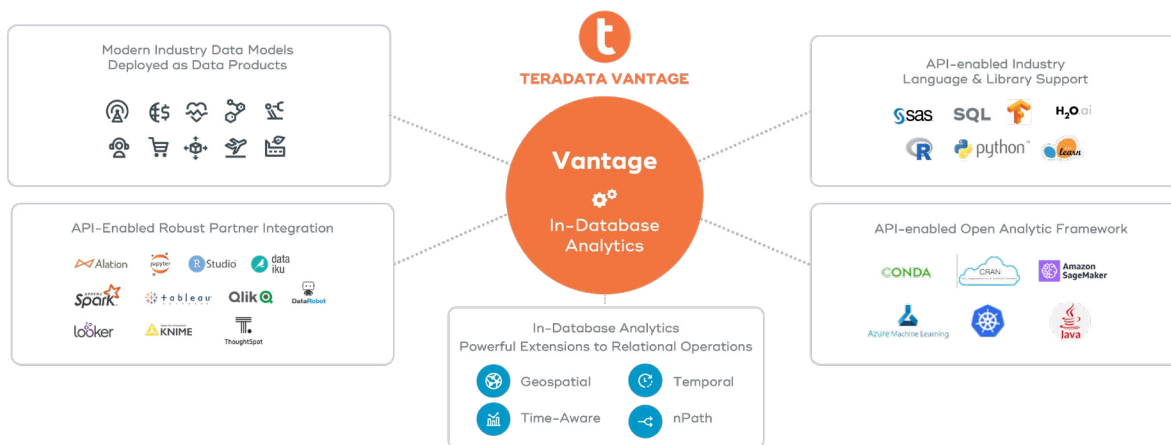

Figure 2. Teradata Vantage is an Open Platform

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- **Enable self-service agility:** Federate queries from Vantage to external data platforms. Query in-place data sets within cloud object stores without needing to move/load files.
- **Cloud native integration:** Support multi-cloud deployments, reducing the need to maintain multiple services, skill sets, and code bases.

Solving Problems and Seizing Opportunities

Demand for predictive and prescriptive analytics is rising. The requirement to orchestrate data acquisition, run data pipelines to refresh data products, execute analytic pipelines for operational scoring, and support exploratory analytics for the building of new models is intensifying.

A modern data and analytic ecosystem therefore needs to be open to orchestrate services from a wide range of providers. You need an open platform, such as Teradata Vantage, as Figure 2 demonstrates. The platform is open to:

- Real-time ingestion of data from cloud native streaming services, such as Kafka and Dataflow
- Batch and ad-hoc ingestion of open file formats, such as Parquet from cloud native object stores
- External languages via APIs such as SAS, Python, and R
- Third-party frameworks via APIs, such as Azure Machine Learning

In addition, an open scalable data fabric allows you to build a connected ecosystem across multi-cloud deployments.

Integration and Orchestration at Scale is Becoming Increasingly Critical

With an orchestration hub based on Teradata Vantage, organizations can:

- Ingest real-time streams of sensor or interaction data
- Load batches of customer transaction data or forecasting data
- Execute tens of thousands of complex store/SKU combinations, forecasting predictive models in parallel, built using your favorite analytics workbench

- Report real-time sales and operations data based on trusted data products
- Execute millions of real-time decisioning models
- Understand customer channel behavior over time

Integrating and orchestrating each of these services will add new levels of workload complexity that only Teradata Vantage can handle (Figure 3).

Being able to connect each transaction, interaction, or event to one another provides incremental value. As you scale by orders of magnitude from 5 million queries per day to more than 250 million per day, you are adding increasingly more depth to your insights and more value to your organization.
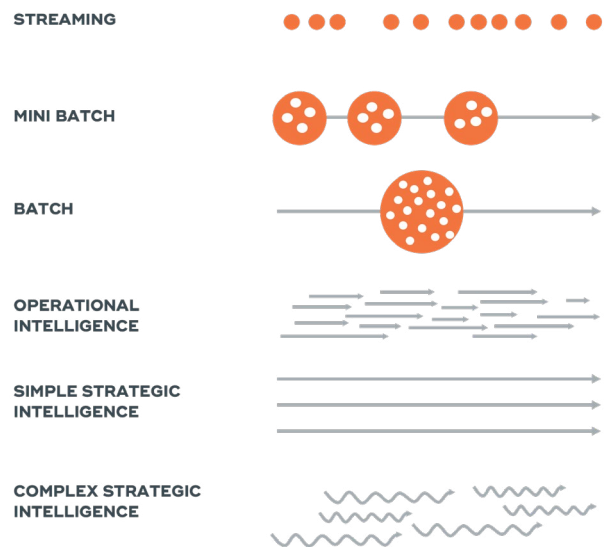

Figure 3. Teradata Vantage is Built for Complexity

Cost per query*

.004 Teradata Vantage
.014 Amazon Redshift
.020 Snowflake 1 System
.029 Snowflake 4 Systems

*Same workloads running on AWS infrastructure
External benchmark BezNext, Feb. 2021

Figure 4. Teradata Delivers the Best Enterprise Performance at Scale

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At the same time, as you scale the volume of data and workloads orchestrated, you need to know that your resource consumption and costs remain effective and predictable. As Figure 4 illustrates, Teradata Vantage is extremely efficient at consuming technology resources, and therefore offers the best enterprise performance at scale.

Teradata offers advanced retail and CPG analytics, operationalized at scale, for high impact business outcomes. These analytics help boost revenue and increase efficiency at a time when retailers and CPGs are facing new challenges and seeing rapid transformation.

The most successful organizations deploy world–class analytics, AI, and an enterprise data architecture to empower future operating models to:

- Grow omnichannel revenue by optimizing customer journeys
- Crack the final mile and deliver on the promise to customers
- Improve efficiency and automation across multichannel processes
- Combat the dual threats of decreased store footprints and increased competition

About Teradata

Teradata is the connected multi–cloud data platform company. Our enterprise analytics solve business challenges from start to scale. Only Teradata gives you the flexibility to handle the massive and mixed data workloads of the future, today. The Teradata Vantage architecture is cloud native, delivered as-a-service, and built on an open ecosystem. These design features make Vantage the ideal platform to optimize price performance in a multi–cloud environment. Learn more at **Teradata.com**.

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